REMARKS/ARGUMENTS

Claims 1-20 and 33-37 are pending. Claims 33-37 are new. Support for the new claims can be found at least in paragraphs 0051-52 of the application as published, and throughout the specification, drawings, and claims as originally filed. No new matter has been added.

The Office Action rejects claims 1-3, 7, 8, and 14-18 under 35 U.S.C. §102(a) as anticipated by "Micropatterning of small molecular weight organic semiconductor thin films using organic vapor phase deposition" (Shtein), rejects claims 1-3, 7, 8, and 14-18 under §102(b) as anticipated by "Micron-scale patterning of organic thin films using organic vapor phase deposition" (Shtein II), rejects claims 1-3, 5, 7, 8, 11, and 14-18 under §103(a) as unpatentable over Shtein, rejects claims 1-3, 5, 7, 8, 10, 12, 14-18, and 20 under §103(a) as unpatentable over Shtein II, and rejects claims 1-20 under §103(a) as unpatentable over various combinations of Shtein, U.S. Patent No. 4,788,082 (Schmitt), "Angular Distribution of Flow from Orifices and Tubes at High Knudsen Numbers" (Stickney), U.S. Patent No. 6,468,605 (Shah), "Vacuum Technology" (Kirk-Othmer), and U.S. Patent No. 5,709,906 (Bickford). These rejections are respectfully traversed.

35 U.S.C. §102 Rejections

Shtein and Shtein II Fail to Disclose a Dynamic Pressure.

Independent claim 1 recites, *inter alia*, "a region between the nozzle and the substrate surrounding the carrier gas has a **dynamic pressure** of at least 1 Torr." The Office Action asserts that Shtein and Shtein II disclose various background pressures, and alleges that these pressures inherently result in the claimed dynamic pressure. Applicants respectfully disagree.

To establish inherency, the record must show that the alleged inherent feature is necessarily present in the cited art; the fact that a certain characteristic may be present is insufficient. *See* M.P.E.P. §2112, Part IV. (citing *In re Rijckaert*, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993), *re Oelrich*, 666 F.2d 578, 581-82, 212 USPQ 323, 326 (CCPA 1981)). As previously described, both Shtein and Shtein II describe organic vapor phase deposition techniques, in which a material passes through a mask to deposit onto a substrate.

There is no suggestion that the passage of the material through the mask, or any other part of the OVPD processes, creates a dynamic pressure as recited in the claims. For example, there is no suggestion that the material passing through the mask may cause a higher pressure in the region of the material that has passed through the mask. Thus, the references fail to show that a dynamic pressure necessarily results, and the references do not support the inherency analysis presented by the Office Action. The Office Action fails to provide any other evidence to support the allegation of inherency, and merely asserts that the background pressures described by Shtein and Shtein II causes a dynamic pressure as claimed. This assertion is insufficient to show that the cited techniques necessarily result in a dynamic pressure as claimed. Thus, the Office Action fails to show that the techniques described by Shtein and Shtein II necessarily result in the claimed dynamic pressure. For at least these reasons, claim 1 and all claims dependent therefrom are allowable over Shtein and Shtein II.

Shtein and Shtein II Fail to Disclose the Claimed Features in the Same Arrangement as Recited in the Claims.

To anticipate a claim, a reference must disclose each and every feature set forth in the claim, in as complete detail and in the same arrangement as recited in the claim. M.P.E.P. §2131 (emphasis added). Shtein describes two separate deposition techniques: organic vapor phase deposition (OVPD), and organic vapor jet printing (OVJP). The majority of Shtein describes OVPD; only section VII refers to OVJP. Notably, section VII is also the only portion of Shtein that refers to a nozzle or a jet of organic vapor. This is unsurprising, since OVPD operates in a diffusive regime using a mask, and does not use a collimated jet of material ejected from a nozzle.

The Office Action combines features from both deposition techniques to reject the claims. Instead of demonstrating that Shtein anticipates the claims, this analysis indicates that Shtein cannot anticipate the claims, since the features relied on by the Office Action are not presented in as complete detail and in the same arrangement as the claims, as is required to support a rejection under §102. The background pressures of 0.1-10 Torr cited by the Office Action are only described in relation to OVPD. With regard to OVJP, Shtein is completely silent as to background, dynamic, or any other pressure. Thus, regardless of whether the Office

Action's inherency analysis is correct, which Applicants do not concede, Shtein fails to disclose ejecting the carrier gas carrying the organic material from the nozzle, wherein a region between the nozzle and the substrate surrounding the carrier gas has a dynamic pressure of at least 1 Torr as recited in the claims. Similarly, the substrate separation, aperture depth, and thickness described by Shtein's Figure 6 relate to the mean free path in an OVPD technique that uses a mask. The Office Action relies on features from two separate deposition techniques to support the anticipation rejection and, therefore, the rejection is improper.

The Office Action attempts to remedy this defect in Shtein II by interpreting the recited term "nozzle" to include a mask as used in OVPD, thus interpreting Shtein II's masked OVPD as a jet deposition technique. However, it is respectfully noted that during examination, claim terms must be given the broadest reasonable interpretation that is consistent with the specification and with the interpretation that those skilled in the art would reach. M.P.E.P. §2111 (citing *Phillips v. AWH Corp.*, 415 F.3d 1303, 75 USPQ2d 1321 (Fed. Cir. 2005) and *In re Cortright*, 165 F.3d 1353, 1359, 49 USPQ2d 1464, 1468 (Fed. Cir. 1999)) (emphasis added). The Office Action's interpretation is consistent with neither.

As previously described, the Office Action's interpretation is inconsistent with use of the terms in the art. Evidence of this is provided by the first Shtein reference cited in the Office Action, which specifically indicates that the use of a jet is a separate technique from OVPD techniques that require use of a mask; Shtein indicates that a nozzle can be used to replace or eliminate the masks used in OVPD systems.

The Office Action's interpretation is also inconsistent with the specification. The specification describes OVPD using a shadow mask at paragraph 0005 of the published application. OVJP using a jet and nozzle is described at paragraph 0027, and is explicitly contrasted against other techniques such as OVPD. Thus, the Office Action's interpretation of OVPD performed with a mask as equivalent to OVJP is inconsistent with the specification.

For at least these reasons, the Office Action's proposed interpretation is inaccurate and fails to support the §102 rejection of the claims, and claims 1 and 11 are allowable over the cited art. The dependent claims are allowable at least for the same reasons as the independent claims.

35 U.S.C. §103 Rejections

Shtein and Shtein II

The Office Action repeats the analysis applied under §102, and further states that it would be obvious to adjust the flow velocity relative to the thermal velocity to obtain the recited features. However, this analysis fails to remedy the defects of Shtein and Shtein II described above. Specifically, neither reference discloses or suggests ejecting a carrier gas from a nozzle at a flow velocity that is at least 10% of the thermal velocity of the carrier gas, wherein a region between the nozzle and the substrate surrounding the carrier gas has a dynamic pressure of at least 1 Torr, and wherein at least one of the nozzle diameter, the nozzle length, and nozzle-to-substrate separation is about equal to the gas mean free path length. Withdrawal of the rejections is respectfully requested.

Shtein and Schmitt

The Office Action rejects all the pending claims as obvious over Schmitt in view of Shtein and various combinations of other references. However, the primary combination of Schmitt and Shtein is improper.

Schmitt describes a deposition process for creating blanket thin films on a substrate, such as to protect the substrate. *See, e.g.,* col. 1, lines 25-34. Schmitt indicates that uniform coatings are preferable, and describes several ways to avoid or reduce the effect of "stagnation points" that cause the deposited film to be non-uniform. *See* col. 4, line 45 – col. 5, line 7; FIG. 11 and related text.

In contrast, the portion of Shtein cited by the Office Action describes a masked OVPD technique which intentionally creates a non-uniform film having regions with substantially higher deposition thickness. *See, e.g.,* p. 4014, Figs. 14-15. Adding Shtein's mask or a similar feature to Schmitt would result in a coating, but with regions of more or less material – or even no material at all. Such a coating would be completely unsuitable for use as the protective coating described by Schmitt. Thus, the combination proposed by the Office Action would render Schmitt unsuitable for its intended purpose. It is also respectfully noted that the portions

of Shtein cited by the Office Action (p. 4014 and 4007-09) describe various diffusive deposition techniques that require the use of a mask and, as previously described, are separate from the jet deposition technique described in Shtein's section VII.

For at least these reasons, the combinations proposed by the Office Action are improper, and fail to render obvious ejecting a carrier gas carrying an organic material from a nozzle at a flow velocity that is at least 10% of the thermal velocity of the carrier gas, such that the organic material introduced with the carrier gas into the nozzle is deposited onto a substrate, separated from the nozzle, forming a patterned film of the organic material on the substrate.

The other cited references fail to remedy the defects of the Schmitt/Shtein combination described above. Specifically, whether taken alone or in combination, none of the references describe or suggest ejecting a carrier gas carrying an organic material from a nozzle at a flow velocity that is at least 10% of the thermal velocity of the carrier gas, such that the organic material introduced with the carrier gas into the nozzle is deposited onto a substrate, separated from the nozzle, forming a patterned film of the organic material on the substrate, wherein a region between the nozzle and the substrate surrounding the carrier gas has a dynamic pressure of at least 1 Torr, and wherein at least one of the nozzle diameter, the nozzle length, and nozzle-to-substrate separation is about equal to the gas mean free path length. Withdrawal of the rejections and reconsideration is respectfully requested.

Interview Request

Applicants thank the Examiner for agreeing to conduct an in-person interview on December 22, 2008, at 1:00 pm, as discussed during a phone call on December 2, 2008.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance and an action to that end is respectfully requested.

If the Examiner believes a telephone conference prior to the in-person interview scheduled for December 22, 2008 would expedite prosecution of this application, please telephone the undersigned at 202-481-9900.

The Commissioner is authorized to charge any fees due or credit any overpayment to the deposit account of Townsend and Townsend and Crew LLP, Deposit Account No. 20-1430.

Respectfully submitted,

/ASKamlay/
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DATE: December 3, 2008

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